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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,877	11/20/2003	Hee Kyung Ju	912-42	5636
23117	7590	10/26/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			RAZA, SAIRA B	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/716,877	JU ET AL.	
	Examiner	Art Unit	
	Saira Raza	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on September 28, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 and 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II, Claims 10-12 in the reply filed on September 28, 2005 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made

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in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US Patent No. 3,871,570) in combination with Onouchi et al. (US Patent No. 4,898,781).

6. Fukushima teaches a process for preparing microcapsules, wherein core substance (active component) is encapsulated (Column:Lines::1:40-47). Specifically, the core substance may be either solid or liquid and either soluble or insoluble in the solvent utilized, one example includes an enzyme in a methylene chloride solvent (3:9-21, 2:38-59). The process comprising: dissolving a polymeric wall material in a solvent with a core substance, adding a vehicle (polyhydric alcohol or polyol), emulsifying the dispersion and obtaining microcapsules, evaporating the solvent, washing off the polyhydric alcohols, and obtaining hard polymer microcapsules (2:19-35, 3:25-67, 4:9-42, Example 1). Fukushima fails to teach the formation of a first solution containing one active component dissolved in a polyol/solvent solution, and subsequent addition to first solution a polymer solution (containing a wall-component polymer).

7. Hence attention is directed towards the Onouchi reference, which discloses water-soluble microcapsules containing an enzyme as a core material. Specifically, Onouchi discloses that the enzymes are not independently encapsulated; rather they can be dispersed in a water-containing polyhydroxy compound, such as a polyol. Concrete examples of the polyhydroxy compound include low molecular weight polyethylene-polypropylene glycol. Onouchi teaches that the addition of water-containing polyhydroxy compound to dissolve or disperse the enzyme acts as a supporting substance for ensuring perfect coating of the microcapsules and enhances the stability of enzyme during storage (2:28-37, 4:1-5, 4:30-52).

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8. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to first dissolve the core substance in a polyol solution and subsequently add a polymeric wall material solution, in the microcapsule formation process of Fukushima in combination with the teachings of Onouchi in order to enhance the stability of the core substance during storage. Furthermore, changes in the sequence of process steps, specifically reversing the order of the prior art process steps has generally been recognized as not being sufficient to patentably distinguish over the prior art. *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959). Additionally, the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). In effect, the applicants specification does not provide any new or unexpected results due to the order of completion of the process steps.

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima in combination with Onouchi as applied to claim 10 above, and further in view of Pasin (US Patent No. 3,664,963).

10. Fukushima and Onouchi fail to teach the re-dispersing of the dispersed enzyme/polyol solution into a polymer solution containing a high molecular weight polyol. Hence, attention is directed towards the Pasin reference, which discloses a process for encapsulating an active material in a shell composition. Specifically, Pasin teaches that polyglycols with a high molecular weight (about 2,000) are suitable for desolventizing capsule compositions in which an organic solvent is employed. Pasin discloses that a preferred polyglycol is polyethylene glycol (2:48-62,4:44-63).

11. Fukushima and Onouchi both teach the encapsulation of core enzymatic substances such as hydrolases (Fukushima 3:19-22, Onouchi 4:5-29).

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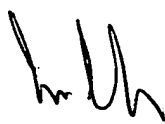
12. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to first dissolve a core enzymatic substance in a low molecular weight polyol solution and subsequently add a polymeric solution containing a high molecular weight polyol, in the microcapsule formation process of Fukushima in combination with the teachings of Onouchi, and further in view of the teachings of Pasin in order to readily desolventize the organic solvent utilized to form the microcapsule.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Raza whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


James J. Seidleck
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Technology Center 1700